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SUMMARY

Agenda Item: H.1

India

USE OF INTER-INDUSTRIES ANALYSIS IN PLANNING

By Dr. K.S. KRISHNASWAMY

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Use of inter-industries analysis in planning.

By Dr. K. S. Krishnaswamy

SUMMARY

1. In India, use has been made of aggregative models, commodity balances and project analysis in the formulation of development plans. These techniques enable the planning authority to set out in considerable detail the physical programme corresponding to the financial magnitudes incorporated in the macro-plan. But, this does not ensure that at all stages of the programme, the product-mix or the investment allocation is in tune with the time-path charted out for the aggregates. With diversification of production structure, it becomes increasingly necessary to take into account changes in product-mix associated with specified patterns of resource allocation. It is in the articulation of this element that inter-industries analysis becomes a technique of interest to the under-developed countries.

2. Since the utility of the inter-industries technique in programming depends on the facility it can offer for more detailed, inter-related projections, the principal questions to be considered relate to the assumptions on which such projections have in fact to be based. At the very outset, one will have to decide the extent to which disaggregation in terms of "industries" can be attempted. If a very detailed sector-classification is adopted, the validity of related projections for a sizeable period of time becomes questionable. This is because the period over which the production-functions of all the industries may be considered as remaining reasonably stable becomes very short; consequently, any medium or long-term projections based on such unstable production-functions would be subject to serious error. When, however, the industrial sectors are defined rather broadly, the production-functions lose some of their specificity and it could plausibly be assumed that minor technological changes will not disrupt the production-functions. Therefore, in seeking a workable solution, a great deal of attention will have to be given to deciding suitable disaggregations. It is also worthwhile considering the possibility of ordering industries in such a way that the effects of new techniques in one set of industries on the others can be taken into account in successive periods.

3. However, technological changes and differences in gestation lags are not the only dynamic elements to be considered. Note will also have to be taken of the changability of relative prices as well as of the effects of growth on behaviouristic parameters. In respect of all these, the effect on the coefficients of a projection model can only be decided on a more or less ad hoc, empirical basis. To some extent, it would be possible to take account of likely technological changes and gestation lags through use of cross-country data. But, such a short-cut would be risky in regard to the changes in relative prices or behaviour patterns that may be imposed on the projections. Some other way will have to be found for reducing the consumption and investment relationships of a multiplicity of units to a form which permits of projective operations. On the consumption side, it may be possible to work in terms of small sub-periods for each of which different consumption elasticities might be postulated; or several commodities may be grouped in such a way that an Engel curve can be formulated from inter-temporal or inter-industry data. The problem of taking into account the behaviour pattern on the investment side does not, however, lend itself to similar treatment. The random variations in intermediate demands attributable to this element can be ignored only under conditions of rigid centralised planning.

4. In other words, the principal advantage of inter-industries analysis lies in the facility it offers for an overt recognition of the structural relationships between a more or less detailed set of physical magnitudes. But a whole lot of pragmatic judgements will be required in working out the linkages between these magnitudes and the policy instruments appropriate to different stages of the development programme.

5. Though explicit inter-industries models have not yet been utilised in India for working out the five-year plans, several attempts have been, and are being, made to construct well-articulated transactions-matrices for the economy. However, despite the rapid increases in the variety of statistical data, it will be some time before a proper ground-work can be laid - both for reliable inter-industry flow-matrices and for estimation of plausible behaviouristic parameters. While these gaps exist, it would be rather unrealistic to expect programming on the basis of an elaborate input-output model. On the other hand, there does exist the possibility of applying this technique for a better enunciation of the programme for a limited range of sectors. Under existing circumstances, it seems both possible and necessary to construct a sub-matrix of key-sectors, which may be treated as the operational part and projections derived on the assumption that the bulk of random variations lie outside this set. The size of this sub-matrix may be gradually increased. In the existing conditions of basic statistics, there seems to be no real alternative to this approach.

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